

## Appendix 5 - Digital methods to sit alongside traditional approaches

I have shown a few methods of how we are receiving feedback, learner work and surveys. I am now going to go into detail of an area that I have yet to fully demonstrate.

Firstly, I mentioned that all our learners, even those learners who are not taking a direct part in the project, take weekly online assessments. These are almost always via Google Forms. Generally, the assessments are on the subject of the last lesson's topics, to hopefully ascertain whether a learners' comprehension of a topic has stayed within recall memory. These assessments are all automatically saved and can be accessed and evaluated at any time.

Below are two examples of what the assessments look like. We sometimes use EquatIO, so that learners can use the right maths symbol or present the maths in the correct fashion.

The image shows a screenshot of four digital assessment questions, each in a separate box. Each box contains a question, a text input field labeled 'Your answer', a blue EquatIO icon, and a '1 point' score indicator.

1a) Expand  $3(10 - 3y)$  \* 1 point  
Your answer  

1b) Expand  $-2(3y - 4)$  \* 1 point  
Your answer  

1c) Expand  $y(y + 3)$  \* 1 point  
Your answer  

1d) Expand  $2w(3a - 5)$  \* 1 point  
Your answer  

3a)

Oliver's salary is £18,000 and he is due to get an increase of 4%.  
How much will this increase be?

3a) What is the increase in salary from the question above? \*

1 point

Your answer



Here is what the results section looks like:

Below is an example of average overall scores of learner's assessments from a recent week.

## Insights

**Average**

2.69 / 8 points

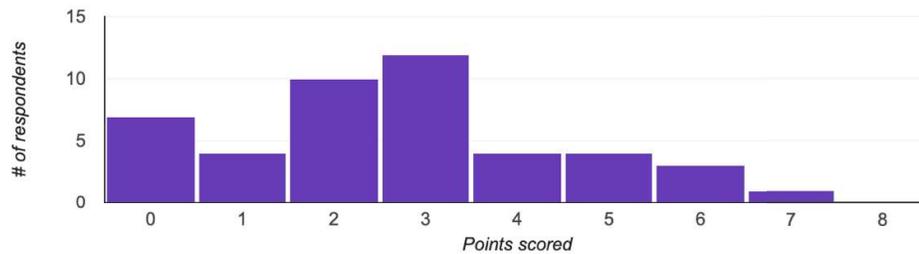
**Median**

3 / 8 points

**Range**

0 - 7 points

Total points distribution

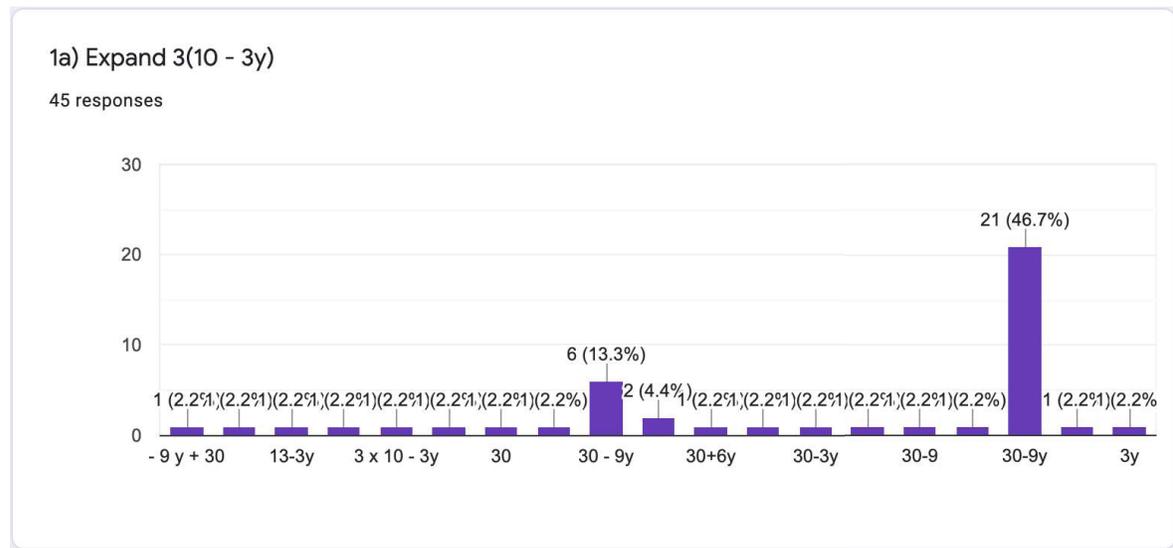


Below is an example of frequently missed questions. It's good to quickly see where learners are struggling at a glance.

## Frequently missed questions ?

Question	Correct responses
1b) Expand $-2(3y - 4)$	7 / 45
1c) Expand $y(y + 3)$	13 / 45
1d) Expand $2w(3a - 5)$	16 / 45
Expand and Simplify: $2(4b + 5) + 3(b - 1)$	0 / 45
2a) What is the sale price from the question above?	20 / 45
4a) What is your answer for the question above?	9 / 45

Below is an example of an answered question and all the answers provided. This is great for finding common mistakes and patterns that may be present.



Below is an example of a class and their responses, all on one spreadsheet to quickly assess and compare.

1a) Expand $3(10 - 3y)$	1b) Expand $-2(3y - 4)$	1c) Expand $y(y + 3)$	1d) Expand $2w(3a - 5)$	Expand and Simplify: $2(4 - 2a)$	2a) What is the sale price	3a) What is the increase
$30 - 9y$	$-6y + 8$	$y$ at the power of 2 + $3y$	$6wa - 10$	$11b + 7$		720
$30 - 9y$	$-6 + 8$	$y^2 + 3y$	$6wa - 10w$	$11b + 7$		720
$30 - 9y$	$-6y + 8$	$y^2 + 3y$	$6wa - 10$	$11b + 7$		18.18
$30 - 9y$	$-6y - 8$	$y^2 + 3y$	$6aw - 10w$	$8b + 10 + 3b - 3 = 11b + 7$		288000
$30 - 9y$	$8 - 6y$	$Y^2 + 3y$	$6wa - 10w$	$11b + 7$		720
$30 - 9y$	$-6y - 8$	$y^2 + 3y$	$6wa - 10w$	$11b + 7$		7207.1
$30 - 9Y$	$-6Y - 8$	$Y^2 + 3Y$ Y SQUARED + 3	$6WA - 10W$	$8B + 10 + 3B - 3 = 11B + 7$		720
$3y$	$4y$	$3y$	$2w$		2	182
$30 - 9y$	$-6y - 8$	$y^2 + 3y$	$6aw - 10w$	$11b + 13$		7.2
$30 - 9y$	$-6y - -8$	$2y + 3y$	$6wa - 10w$	$11b + 6$		720
$30 - 9y$	$-6y + 8$	$y$ squared + $3y$	$6aw - 10w$	$11b + 7$		18720
$30 - 9y$	$-6y + 8$	$2(3y - 4)$	$36aw - 60w$	$11b + 7$		205
$3 \times 10 - 3y$	$-2y \times 3y - 4$	$y \times y + 3$	$2 \times w \times 3 \times a - 5$	$18b + 2b$		0
$30 - 9y$	$-2y + 8$	$y$ squared + $3y$	$6aw - 10w$	$11b + 7$		18072
$30 - 3y$	$-6 - 4$		0	0	0	130
$-9y + 30$	?	$y^2 + 3y$	?		15	18720
$-9y + 30$	$-6y + 8$	$Y$ squared + $3y$	$6aw - 10w$	$11b + 7$		4

Lastly, the team fully adopted the use of Google Docs for digital workbooks. Especially helpful during our various times teaching remotely.

The Google Doc workbook that learners use whilst taking part in a digital lesson, are all shared with the maths team and therefore can be analysed whenever. This feature was especially useful when we go to compare feedback and results between terms. The live nature of Docs was great to monitor learners work during remote lessons. We could check on progress and see what was written and importantly, when.

A shop sells CDs and DVDs.

In one week the number of CDs sold and the number of DVDs sold were in the ratio 3:5  
The total number of CDs and DVDs sold in the week was 728

Work out the number of CDs sold.

<u>Working out</u>	<u>Answer</u>
$3 + 5 = 8$ $728 / 8 = 91$ $3 \times 91 = 273$	273 cd's

Working out	Answer
a) HCF=2	a) $2(2x+3)$
b) HCF=5	b) $5(3x+4)$
c) HCF=3	c) $3(3y-4)$
d) HCF=5	d) $5(x+3)$
e) HCF=3	e) $3(2x-1)$
f) HCF=4	f) $4(x+2)$
g) HCF=5	g) $5(y-5)$
h) HCF=8	h) $8(w+3)$
i) HCF=5	i) $5(2y+3)$
j) HCF=7	j) $7(2w+3)$
k) HCF=10	k) $10(2y-3)$
l) HCF=9	l) $9(3x+2)$

Green

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## Team quotes and feedback:

### Direct participation in the project

*"I assisted in collating survey result evidence obtained throughout the year. The format used for these surveys was Google Forms, which effectively displays these answers as pie charts and tables. Furthermore, using Google docs enabled me to easily copy these results to a central location and, using Google Drive, share these findings directly with Joe. The fact that these applications worked so well together in unison really helped to streamline this process."*

*"This year, a duty of mine was to research and develop techniques in target setting for our learners in maths in a digital format. This focused on providing an accessible method for learners, which could allow the transfer of information easily to our college system. Google docs provided a platform which allowed for the convenient creation of templates which utilise clear 'fill in the blank' prompt boxes, which could then be used in conjunction with our college VLE to deliver individual digital copies to learners, which could then be monitored in real-time time by teachers."*

## Indirect participation in the project

*“Despite having a background in teaching subjects with a heavy emphasis on digital methods, this last year has encouraged me to explore and consider a number of different methods in delivering maths in a digital form, of which I had not even previously given thought to. I am pleased to work with a team who worked collaboratively in applying problem solving in delivering challenging topics in creative digital forms, to provide material which is accessible to learners and allowed the continued quality of learning for our students. This has broadened my views on methods which could be commonplace in the classroom, in addition to the traditional, paper based learning that many associate with maths.”*